CLAIMS

1. A method of determining an interference relationship between cells of a cellular communication system comprising at least a first cell and a second cell; the method comprising the step of:

determining an interference relationship between the first cell and the second cell in response to a potential interference relationship between the first and the second cell and a simultaneous occupancy of the first cell and the second cell.

2. A method as claimed in claim 1further comprising the steps of:

dividing an evaluation interval into sub-intervals;

for each sub-interval determining a sub-interval potential interference in response to the interference characteristics in each sub-interval; and

determining the potential interference relationship for the evaluation interval in response to the sub-interval potential interferences.

3. A method as claimed in claim 1wherein the step of determining a simultaneous occupancy comprises the steps of:

dividing an evaluation interval into sub-intervals;

for each sub-interval, determining a sub-interval simultaneous occupancy by determining an occupancy of each of the first cell and the second cell; and

determining the simultaneous occupancy for the evaluation interval in response to the sub-interval simultaneous occupancies.

4. A method as claimed in claim 1further comprising the step of

dividing an evaluation interval into a plurality of sub-intervals;

for each sub interval performing the steps of:

determining a sub-interval simultaneous occupancy by determining an occupancy of each of the first cell and the second cell,

determining a sub-interval potential interference in response to the interference characteristics in each sub-interval, and

determining a sub-interval interference relationship in response to the sub-interval simultaneous occupancies and the sub-interval potential interferences; and

wherein the interference relationship is determined in response to the sub-interval interference relationships.

5. A method as claimed in claim 3 or 4 wherein the step of determining the simultaneous occupancy for the evaluation interval comprises determining the simultaneous occupancy as an average of the sub-interval simultaneous occupancies

6. A method as claimed in claim 3 to 5 wherein the occupancy of at least one of the first cell and the second cell is determined from network statistics.

7. A method as claimed in claim 6 wherein the network statistics comprise a measurement report quantity characteristic.

8. A method as claimed in any of the previous claims wherein the potential interference relationship is determined in response to a measurement of a signal level in the second cell associated with a transmission in the first cell.

9. A method as claimed in any previous claim wherein the potential interference relationship is associated with assignment of co-channel carriers in the first and the second cell.

10. A method as claimed in any previous claim wherein the potential interference relationship is associated with assignment of adjacent channel carriers in the first and the second cell.

11. A method as claimed in any previous claim wherein the potential interference relationship is in response to a ratio of communication units of the second cell for which an interference from the first cell will cause a quality level below a given threshold.

12 A method of frequency planning for a plurality of cells in a cellular communication system, the method comprising the steps of:

determining the interference relationship for combinations of two cells of the plurality of cells in accordance with the method of any of the previous clams 1 to 11;

for the combinations of two cells determining a penalty associated with a corresponding frequency allocation in response to the interference relationship of that combination of two cells; and

allocating carrier frequencies to the plurality of cells in response to the penalty values.

13. A method of frequency planning as claimed in claim 12 wherein the frequency allocation is such that the sum of penalty values is minimised.

14. A method of frequency planning as claimed in claim 12 or 13 wherein the penalty values are associated with corresponding frequency allocations of co-channel frequencies.

15. A method of frequency planning as claimed in claim 12 or 13 wherein the penalty values are associated with the corresponding frequency allocations of adjacent channel frequencies.

16. A method according to any of the previous claims wherein the cellular communication system is a GSM communication system.

17. A computer program enabling the carrying out of a method according to any of the previous claims.

18. A record carrier comprising a computer program as claimed in claim 17.

19. An apparatus for determining an interference relationship between cells of a cellular communication system comprising at least a first cell and a second cell; the apparatus comprising:

means for determining an interference relationship between the first cell and the second cell in response to a potential interference relationship between the first and second cell and a simultaneous occupancy of the first and the second cell.